

CLAIMS

WHAT IS CLAIMED:

1. A method for DC level control for a line card, comprising:
5 receiving a digital input signal;
determining a first DC component value of the digital input signal at a first
preselected time;
determining a second DC component value of the digital input signal at a second
preselected time;
10 determining a difference between the first DC component value and the second DC
component value; and
providing the first DC component value to a digital-to-analog converter in response to
determining that the difference is less than a first preselected value.
- 15 2. The method of claim 1, further comprising subtracting the difference between
the first DC component value and the second DC component value from the digital input
signal.
3. The method of claim 1, further comprising providing the second DC
20 component value to a digital-to-analog converter in response to determining that the
difference is greater than the first preselected value.
4. The method of claim 1, the line card being linked to a customer premises by a
subscriber line, wherein determining the second DC component value of the digital input

signal at a second preselected time includes determining a value proportional to the DC component of a signal on the subscriber line.

5 5. The method of claim 1, wherein the digital input signal includes voice and data components.

6. The method of claim 1, the line card including an analog-to-digital converter, wherein the first preselected value is in a range of $1/100^{\text{th}}$ to $1/10^{\text{th}}$ of full scale voltage of the analog-to-digital converter.

10 7. An apparatus, comprising:
a digital-to-analog converter; and
logic coupled to the digital-to-analog converter, the logic capable of:
receiving a digital input signal;
15 determining a first DC component value of the digital input signal at a first preselected time;
determining a second DC component value of the digital input signal at a second preselected time;
determining a difference between the first DC component value and the
20 second DC component value; and
providing the first DC component value to the digital-to-analog converter in response to determining that the difference is less than a first preselected value.

8. The apparatus of claim 7, wherein the logic is further capable of subtracting the difference between the first DC component value and the second DC component value from the digital input signal.

5 9. The apparatus of claim 7, wherein the logic is further capable of providing the second DC component value to a digital-to-analog converter in response to determining that the difference is greater than the first preselected value.

10 10. The apparatus of claim 7, wherein the digital input signal includes voice and data components.

11. The apparatus of claim 7, the apparatus including an analog-to-digital converter, wherein the first preselected value is in a range of $1/100^{\text{th}}$ to $1/10^{\text{th}}$ of full scale voltage of the analog-to-digital converter.

15 12. An apparatus, comprising:
a digital-to-analog converter; and
a DC cancellation feedback loop comprising:

20 an analog-to-digital converter capable of receiving a signal having a DC component from a subscriber line, the analog-to-digital converter capable of converting the signal to a digital signal;

25 DC cancellation logic capable of approximating a first DC value proportional to the DC component of the digital signal at a first preselected time and a second DC value proportional to the DC component of the digital signal at a second preselected time;

first logic capable of determining a difference between the first DC value and the second DC value and providing the difference to the DC cancellation logic; and

second logic capable of providing the first DC value to the digital-to-analog converter in response to determining that the difference is less than a first preselected value.

13. The apparatus of claim 12, wherein the second logic is further capable of providing the second DC component value to a digital-to-analog converter in response to determining that the difference is greater than the first preselected value.

14. The apparatus of claim 12, wherein the digital signal includes voice and data components.

15. The apparatus of claim 12, the apparatus including an analog-to-digital converter, wherein the first preselected value is in a range of $1/100^{\text{th}}$ to $1/10^{\text{th}}$ of full scale voltage of the analog-to-digital converter.

16. A line card, comprising:

a subscriber line interface circuit capable of interfacing with a telephonic device and providing a signal;

a digital-to-analog converter; and

a digital signal processor configured to receive the signal from the subscriber line interface circuit, the digital signal processor comprising:

logic capable of:

receiving an input signal;
determining a first DC component value of the digital input signal at a
first preselected time;
determining a second DC component value of the digital input signal at
5 a second preselected time;
determining a difference between the first DC component value and
the second DC component value; and
providing the first DC component value to the digital-to-analog
converter in response to determining that the difference is less
10 than a first preselected value.

17. The line card of claim 16, wherein the logic is further capable of subtracting
the difference between the first DC component value and the second DC component value
from the digital input signal.

18. The line card of claim 16, wherein the logic is further capable of providing the
second DC component value to a digital-to-analog converter in response to determining that
the difference is greater than the first preselected value.

19. The line card of claim 16, wherein the digital input signal includes voice and
data components.

20. An apparatus, comprising:
means for receiving a digital input signal;

means for determining a first DC component value of the digital input signal at a first preselected time;

means for determining a second DC component value of the digital input signal at a second preselected time;

5 means for determining a difference between the first DC component value and the second DC component value; and

means for providing the first DC component value to a digital-to-analog converter in response to determining that the difference is less than a first preselected value.

means for determining a first DC component value of the digital input signal at a first preselected time;